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ABSTRACT

Analytic support mechanisms that support institutional planning at the Medical University of South Carolina are described. The focus is productivity on "return on investment" of academic departments. The literature dealing with productivity and the inherent problems with productivity assessment in the academy is reviewed. In addition, the potential for using these mechanisms in the allocation or reallocation of institutional resources is discussed in the context of the medical university's total planning effort. The analytic support mechanisms help identify the trends in commitments of current resources and provide data needed for comparative analyses of academic units. Baseline data for each academic department are gathered on a Departmental Data for Planning sheet, which is appended. The sheet displays major resource levels in each department for teaching and research, as well as indicators of productivity (e.g., credit hours and number of grants); and cross-analyses and input-output ratios. To illustrate the use of the sheet, data are provided on various departments' ratios of extramural research dollars to state or institutional support for research. State support for research is also compared to indirect costs recovered and potential overhead and support. (SW)

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Planning for Productivity in the University

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This paper was presented at the 1984 Annual Conference of the Southern Association for Institutional Research held in Little Rock, Arkansas, October 24-26, 1984. It was reviewed by the SAIR Publications Committee and was judged to be of interest and pertinent to others concerned with the research in higher education. This paper has therefore been selected to be included in the ERIC collection of Conference Papers.

Richard D. Howard
President, SAIR

Planning for Productivity

in the University

Abstract

This paper describes several analytic support mechanisms which have been developed at the Medical University of South Carolina. All of these mechanisms focus on the productivity or "return on investment" of academic departments. The literature dealing with productivity and the inherent problems with assessing it in the academy is reviewed. Finally, the potential for using these mechanisms in the allocation of reallocation of institutional resources is discussed within the context of the Medical Univercity's total planning effort.

Planning for Productivity in the University

Certainly, no one who does university planning would claim that his activity was anything less than strategic. No institution would claim that it searched for or pursued anything other than excellence. No academic department would claim to be less than productive. No faculty member would claim to produce anything other than work of the highest quality. All of these currently fashionable terms: strategic planning; excellence; productivity; and quality are rightfully included in a discussion of administrative information systems. Indeed, all of these terms reflect the process and/or product of analytic mechanisms developed in institutional research.

The purpose of this second segment of our panel is to consider the retrieval, presentation, and interpretation of institutional planning data. Data regarding the use of resources will be the particular focus here, and then Dr. Stefanu's paper will deal more with the application of planning data in the allocation of resources. Before describing several mechanisms which can help retrieve and present planning data, I would like to discuss briefly the basic objectives of such mechanisms. As Hogness points out, "In many cases . . . our information-gathering capabilities have outstripped our commitment to better management. The availability of information alone will not improve decisionmaking."[1] Hogness goes on to assert that "most management information systems are designed on

the assumption that the 'critical deficiency under which most managers operate is lack of relevant information,'" but "what they really suffer more from is an 'overabundance of irrelevant information.'"[2]

Other than for the purposes of mandated reporting, institutional information in a university should serve either academic and/or administrative-management purposes. That is, such data should respond to programmatic, mission-related questions, or questions involving the capacity or ability of the institution to operate efficiently and cost-effectively. Obviously, this division between missions and institutional costs is a somewhat artificial one, and seldom can we talk about programmatic questions from a purely academic perspective. The concept of such a division is, however, useful in discussing the topic of planning for productivity. The current trend of adapting management practices for the university has brought the academically troublesome issue of assessing productivity to the forefront. Cherrington reminds us that "Administrators are expected to use quantitative analyses to support their budgetary decisions. They are also expected to reassure the academic community that numbers and formulae are not the sole bases on which they make sound educational judgments. Indeed, they face the challenge . . . of how to be academic though systematic."[3]

At the Medical University of South Carolina, we have developed several analytic mechanisms which support the institutional planning process. They have been overtly designed for several reasons which are probably basic for most institutions. These include:

1. Knowing enough to identify the relevant issues, the basic questions which need to be asked about the current operations and future directions of the institution.

2. Determining the levels of activity of the various units on campus, and performing cross analyses of inputs and outputs.
3. Identifying the true levels of institutional resource commitments to the units for specific functions (e.g. space and dollars for teaching and research).

Donald Lelong noticed, when he was planning at the University of Michigan, "'in a small minority of situations, the factual and evaluative information assembled in the course of a particular planning activity paints such a clear picture of the need for change that it alone is sufficient to precipitate a decision to act.'"[4]

Lelong's statement is pertinent here because the analytic mechanisms developed at the Medical University were not done to reach or support any previously-identified decisions or points of view. There is, however, a general consensus that the information assembled through these mechanisms will provide the information base needed in the formulation of policy and, ultimately, in the allocation and reallocation of resources. There has been, in other words, an agreement that such information will, when taken together, reveal an administrative schematic of the institution.

Only after an examination of institutional resources has taken place can the administration begin to plan for productivity. But, productivity is not an easy concept to deal with in an academic context. It is not easy to deal with because of the nature of a university's products and the faculty's (and even some administrators') perceptions that true productivity in the academy can never be determined quantifiably. This attitude is described by Virginia Smith in an essay called, "Assessing and Improving

Productivity in Higher Education." She lists several factors which are obstacles to change in this area, "especially those designed to improve the ratio of inputs and outputs." For instance, she says, "Not only is much of the faculty lacking in any sense of cost-consciousness, but many also behave in a way that suggests attention to costs is somehow not quite respectable. . . [and] Budget processes of many institutions divorce responsibility for securing revenue from responsibility for spending . . . and few budgeting processes include program evaluation techniques."[5]

During the implementation of the current institutional planning process at the Medical University of South Carolina, we have acquired first-hand knowledge that such statements are true. The analytic support mechanisms developed during, and in support of the planning process have been designed to evaluate the expenditures and commitments of resources of the departments and determine if administration's vision of the future direction of the University is reflected in them. We also wanted some indication of our "return on investment," or productivity based on certain criteria common to all the units.

In order to provide some philosophical and historical context for a discussion of these mechanisms, I would like to talk for a few moments about our "Planning for Excellence" program at the Medical University. Actually, we have a formal and an informal view of planning, both of which are captured in the following quotes [See Figure 1].

> "Planning is a process of preparing a set of decisions for action in the future, directed at achieving goals by optimal means."[6]

"Even if you're on the right track, if you stay in the same place, you're going to get run over."[7]

These two quotes indicate the objective of efficiency through strategic action, and that planning is really all about change. The basic steps in planning for change and productivity are shown in [Figure 2]. The process ultimately ends in the establishment of institutional priorities at the point of convergence between the annual budget process and the decisions and policies regarding resource allocations. The most effective point for management information and institutional studies has been between goals and resource analyses. That is, summaries and trends of the units' goals and their projections of needs for additional resources has been done as they have submitted their planning documents. The analytic support mechanisms which we have produced have actually served as attempts to identify the trends in commitments of current resources. As such, they have provided us with the necessary data for comparative analyses of the academic units with regard to two principal missions - teaching and research. They are not intended to identify priorities or reflect upon the appropriateness of unit goals, but only to provide baseline data which, together with the other aspects of the planning processs, can assist the administration in the forumlation of policies and decisions about priorities [See Figure 3].

These baseline data for each academic department are gathered on what I have called a "Departmental Data for Planning" sheet. As I am sure we can all agree, the consolidation of the many pieces of data generated on a university campus is a major goal in itself. As our "Planning for

Excellence" program moved ahead, we realized that there was no succinct, yet comprehensive, collection of data on the current level of activities and resources for the academic departments. Thus, there was no effective means for comparing a unit's future plans with the current base of operations for that unit. How could an administration pass judgment on a department's plans to move to point "B", if the specifics of point "A" were not available.

We needed an instrument which would 1) display the major resource levels in each department in the areas of teaching and research 2) reflect some of the universally-accepted indicators of productivity (e.g. credit hours and numbers of grants) 3) and contain certain cross-analyses and input-output ratios. Perhaps most importantly, the data on the sheet should be based on the total commitment of effort to each department. That is, the "Total FTE's By Effort" for each department would be the sum of faculty and research staff effort expended for the projects and programs of that department according to the quarterly time and effort reports. This total of FTE's, therefore, would not necessarily correspond to the list of FTE's or the payroll list a chairman would have. It would show, however, the sum of the professional effort being directed to a particular department.

The "Departmental Data for Planning" sheet presents the core of information upon which subsequent analytic mechanisms are built. For example, in Figure 4. we can see a graphic display of the various departments' ratios of extramural research dollars to state or institutional support for research. The diagonal line represents a ratio of 2.50 to 1.0 (extramural to state dollars). Thus, any point to the right of the line will have a ratio greater than 2.50 to 1.0.

The graph allows us to reflect accurately the actual level of activity of each department. For example, Department "D" has a ratio of $6.72/$1.00, whereas Department "G" has a ratio of only $3.04/$1.00. However, Department "D" is operating at a level of $336,000 in extramural funds to $50,000 in institutional support. Department "G", on the other hand, has $851,200 in grant monies and $280,000 in institutional funds. The point is that although Department "D" has a better ratio (and, thus, does show a high degree of efficiency), the level of research activity in Department "G" is much greater.

The quadrants indicating the type of ratios and levels of activity was formed by taking the college average for each type of funds. Thus, departments in the lower right quadrant will exhibit both high ratios and high levels of activity. Obviously, the positive direction in this matrix is toward the lower right corner.

In Figure 5., we compare a department's "State Support for Research" to "Indirect Costs Recovered" and to "Potential Overhead and Support" (or "Total Costs"). The "Potential Overhead and Support" is derived by adding: 1) state support for research (salaries and operating expenses) 2) 4% of total extramural funds (to cover administrative expenses such as payroll, accounting, etc.) 3) "rental" of research space at $20.00/square foot.

These same figures are shown for the whole institution with the three bars to the right of the graph. This bar graph was designed to place in perspective the capacity of a department to support its research activity. Through the use of internal pricing, we have tried to compute the real

level of research support that is being provided to a department by the institution.

The Medical University of South Carolina is aware, however, that these analytic support mechanisms cannot provide the total measure of an academic department's quality. These mechanisms should be used to reveal the allocation of resources and the level of activity which those resources generate. Although this is not to be confused with a qualitative evaluation, productivity will generally be reflected in some way by the quantity of output. We must attempt to keep in mind that:

> "Idealism without efficiency is futile;
> Efficiency without idealism is fatal."[8]

References

[1]John R. Hogness, "The Pursuit of Excellence: Coping with Scarce Resources," American Journal of Pharmaceutical Education, Vol. 47, Winter, 1983, p. 351.

[2]Hogness, p. 351.

[3]B. E. Cherrington, "Cost Analysis in Academic Decision Making," Educational Record, Spring, 1979, p. 185.

[4]Donald Lelong quoted in George Keller, Academic Strategy, (Baltimore: Johns Hopkins University Press), 1983, p. 133.

[5]Virginia Smith, "Assessing and Improving Productivity in Higher Education,"

[6]Y. Dror, "The Planning Process: A Facet Design," International Review of Administrative Sciences, Vol. 29, No. 1, 1963, p. 44.

[7]Quotation attributed to Will Rogers.

[8]David V. Ragone, "Remarks," Impact and Challenge: R & D in the FY 1983 Budget, Colloquium Proceedings of the American Association for the Advancement of Science, 1982, p. 133.

PLANNING FOR PRODUCTIVITY IN THE UNIVERSITY

"PLANNING IS A PROCESS OF PREPARING A SET OF DECISIONS FOR ACTION IN THE FUTURE, DIRECTED AT ACHIEVING GOALS BY OPTIMAL MEANS." (DROR, 1963)

"EVEN IF YOU'RE ON THE RIGHT TRACK, IF YOU STAY IN THE SAME PLACE, YOU'RE GOING TO GET RUN OVER." (WILL ROGERS)

Figure 1.

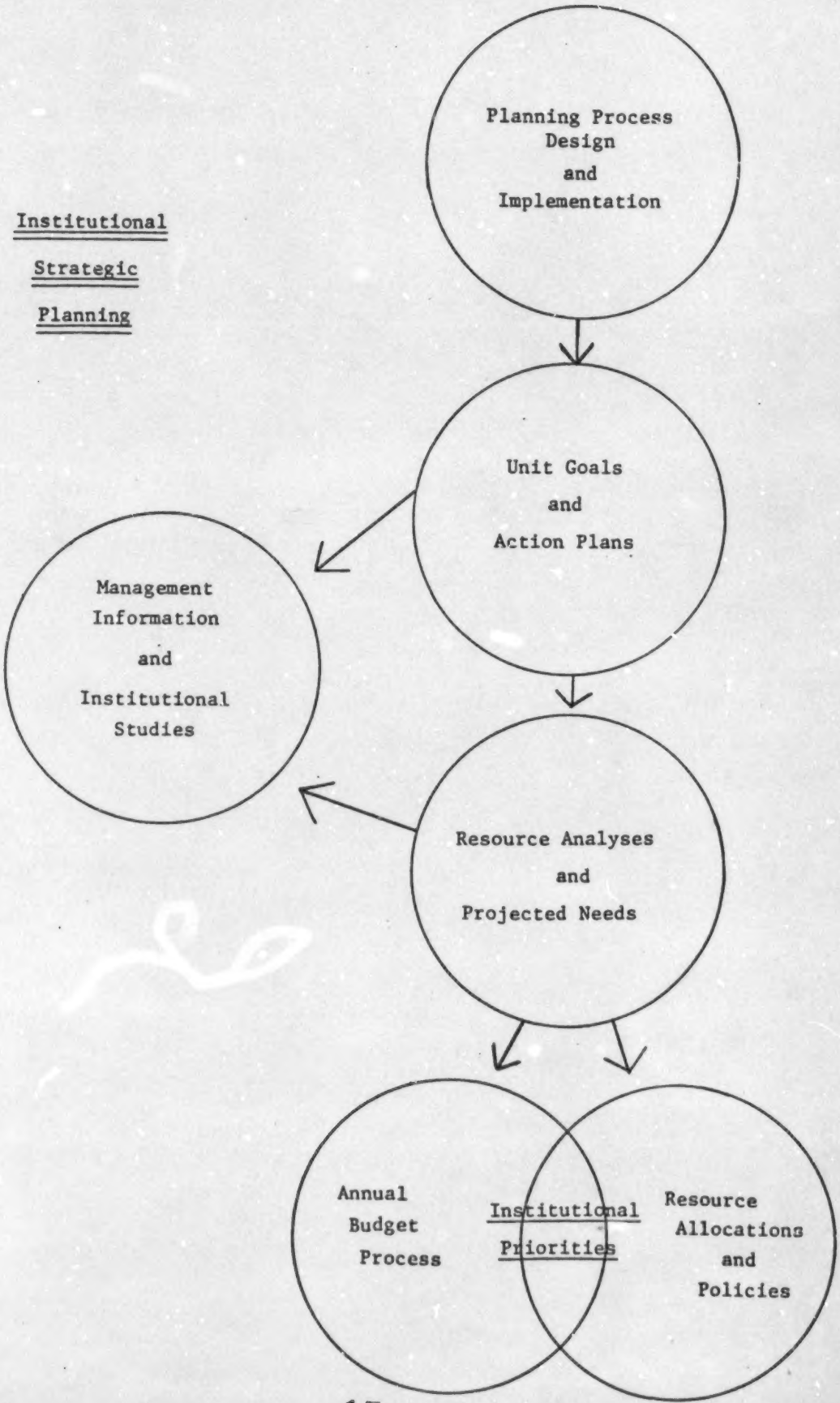
Institutional Strategic Planning
Planning Process Design and Implementation
Unit Goals and Action Plans
Management Information and Institutional Studies
Resource Analyses and Projected Needs
Annual Budget Process
Institutional Priorities
Resource Allocations and Policies

Figure 2.

Departmental Data for Planning (1983-84)

Department _____(_____)

Comparative Analyses and Ratios

- Total FTE's by Effort _____

- Salary Support

  State _____

  Federal _____

  Other _____

  Total _____

A. INSTRUCTIONAL EFFORTS and SUPPORT

- Funds

  Total State _____
  (Salaries and Operating Expenses)

  Other Salary Support _____
  (Includes Federal and Private)

Faculty Teaching FTE's/Faculty Research FTE's _____

- Teaching FTE's (By effort)

  Total _____

Total Teaching FTE's/Research FTE's _____

- Credit Hours (Fall 1983)

  Department Total _____

Avg. Credit Hours/FTE _____

- Instructional Space (Library and Conference) _____ ft^2

B. RESEARCH EFFORTS and SUPPORT

- Funds

  Total State _____
  (Salaries and Operating Expenses)

  Institutional Grants _____
  (Number of awards _____)

  Extramural _____
  (Number of PI's _____; Grants _____)

Extramural Research Dollars/State Research Dollars _____

- Research FTE's (By effort)

  _____ (Organized Research) (Faculty _____)

  _____ (Departmental Research)

  Total _____ (Includes all research faculty and staff)

- Research Space

  Organized Research _____ ft^2

Extramural Dollars/Sq.ft. _____
(Basic Science Average _____;
Clinical Average _____

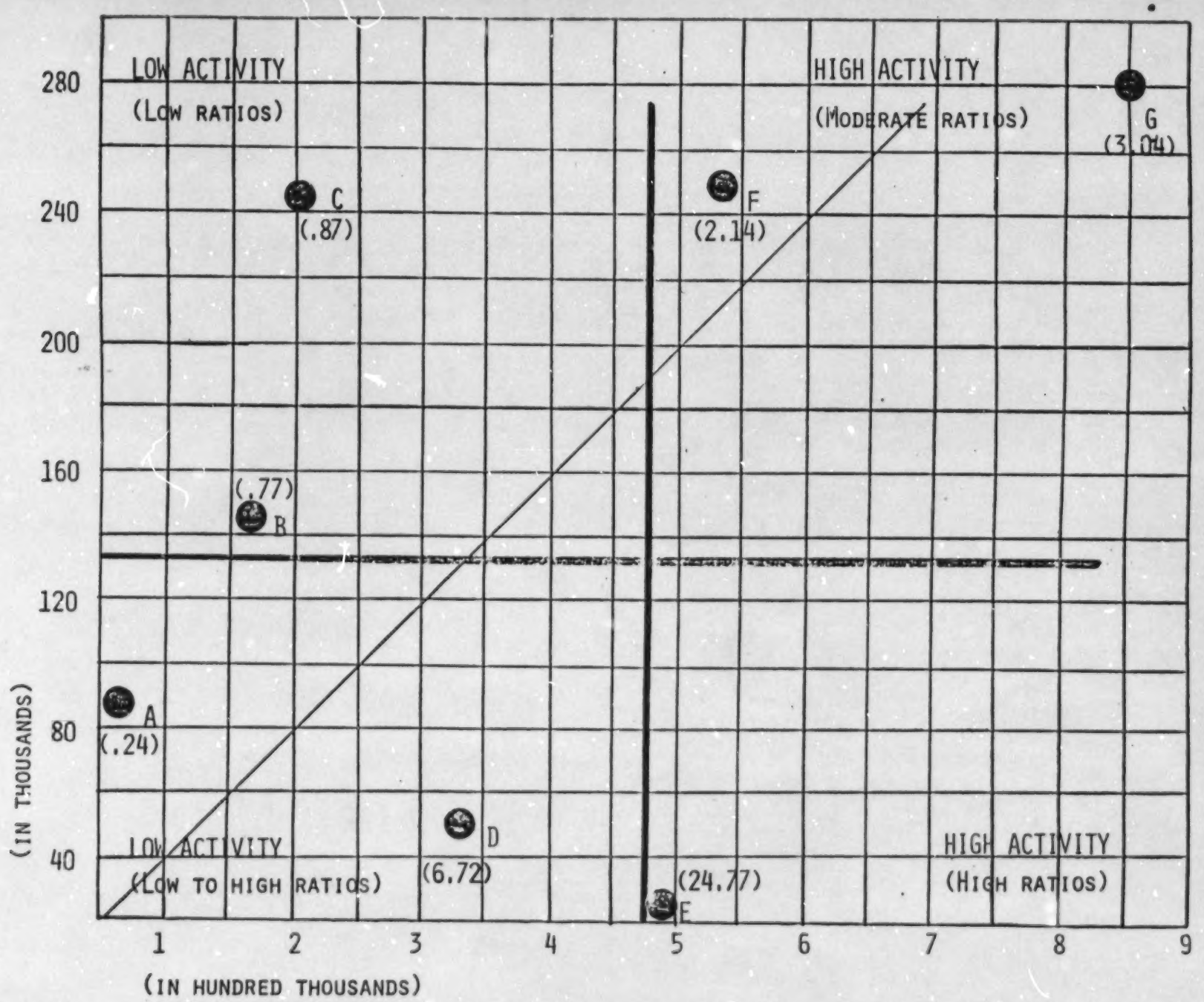
LOW ACTIVITY
(LOW RATIOS)
HIGH ACTIVITY
(MODERATE RATIOS)
LOW ACTIVITY
(LOW TO HIGH RATIOS)
HIGH ACTIVITY
(HIGH RATIOS)
A
(.24)
B
(.77)
C
(.87)
D
(6.72)
E
(24.77)
F
(2.14)
G
(3.04)
280
240
200
160
120
80
40
1
2
3
4
5
6
7
8
9
(IN THOUSANDS)
(IN HUNDRED THOUSANDS)
STATE RESEARCH SUPPORT
EXTRAMURAL RESEARCH DOLLARS

Figure 4.

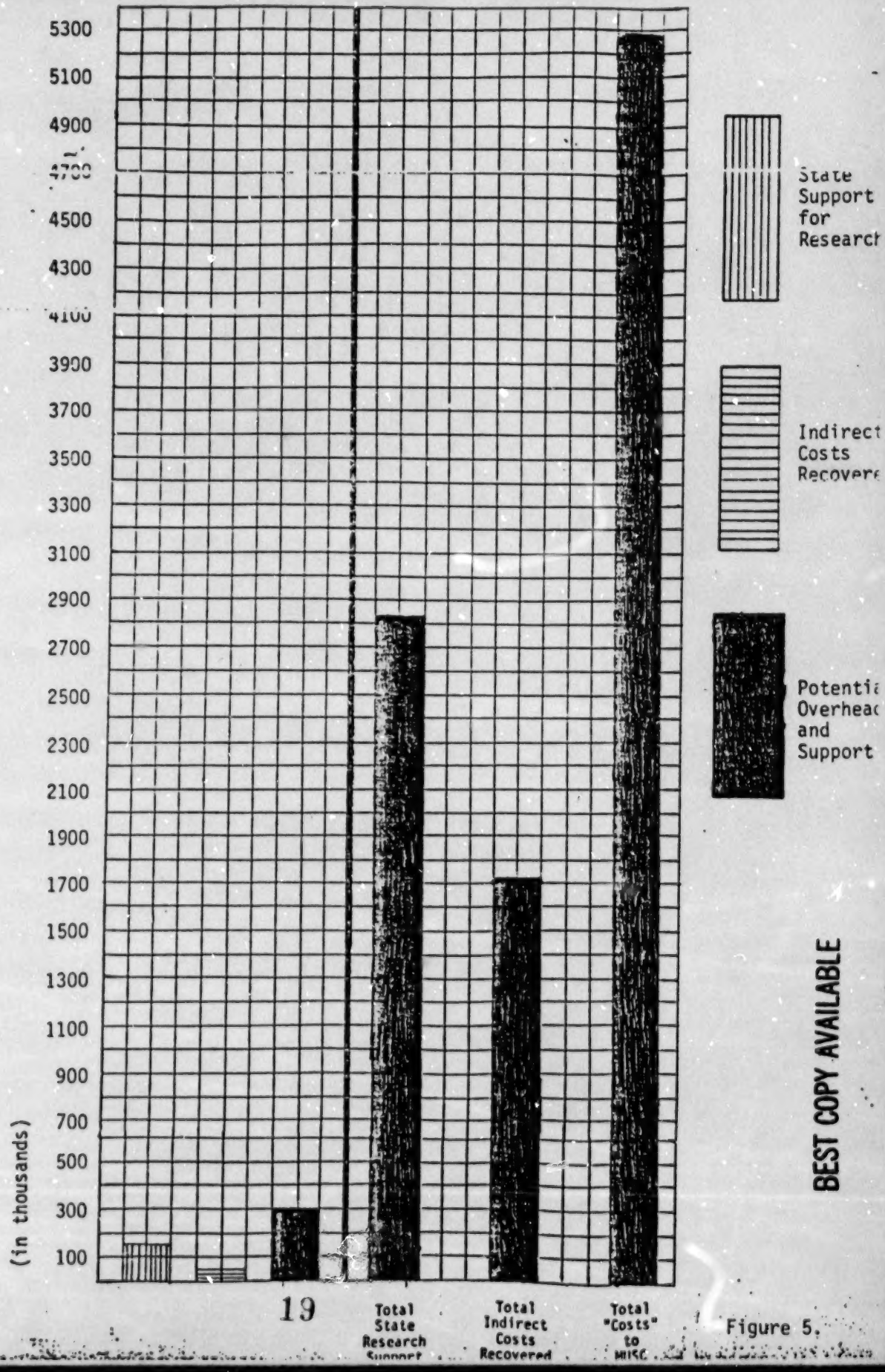

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Figure 5.